

## ABSTRACT

The invention provides novel scale-based filtering methods that use local structure size  
5 or “object scale” information to arrest smoothing around fine structures and across even low-  
gradient boundaries. One method teaches a weighted average over a scale-dependent  
neighborhood; while another employs scale-dependent diffusion conductance to perform  
filtering. Both methods adaptively modify the degree of filtering at any image location  
depending on local object scale. This permits a restricted homogeneity parameter to be  
10 accurately used for filtering in regions with fine details and in the vicinity of boundaries, while  
at the same time, a generous filtering parameter is used in the interiors of homogeneous  
regions.